



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup>:</b> <b>A61K 9/16, 38/27, 47/02</b>	<b>A3</b>	<b>(11) International Publication Number:</b> <b>WO 96/40072</b> <b>(43) International Publication Date:</b> 19 December 1996 (19.12.96)
<b>(21) International Application Number:</b> PCT/US96/08086 <b>(22) International Filing Date:</b> 3 June 1996 (03.06.96)  <b>(30) Priority Data:</b> 08/473,544      7 June 1995 (07.06.95)      US 08/477,725      7 June 1995 (07.06.95)      US  <b>(71) Applicant (for all designated States except US):</b> ALKER-MES CONTROLLED THERAPEUTICS, INC. [US/US]; 4th floor, 64 Sidney Street, Cambridge, MA 02139 (US).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> JOHNSON, OluFunmi, Lily [NG/US]; 10 Centre Street, No. 1E, Cambridge, MA 02139 (US). GANMUKHI, Medha, M. [IN/US]; 426 Staghorn Drive, Wexford, PA 15090 (US). BERNSTEIN, Howard [CA/US]; 929 Massachusetts Avenue, No. 2B, Cambridge, MA 02139 (US). AUER, Henry [US/US]; 130 Waverly Street, No. 1, Belmont, MA 02178 (US). KHAN, M., Amin [GB/US]; 29 Twin Pines Road, Downingtown, PA 19335 (US).  <b>(74) Agents:</b> BROOK, David, E. et al.; Hamilton, Brook, Smith & Reynolds, Two Militia Drive, Lexington, MA 02173 (US).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  <b>(88) Date of publication of the international search report:</b> 23 January 1997 (23.01.97)
<b>(54) Title:</b> COMPOSITION FOR SUSTAINED RELEASE OF HUMAN GROWTH HORMONE  <b>(57) Abstract</b> <p>A composition, and methods of forming and using said composition, for the sustained release of biologically active, stabilized human growth hormone (hGH). The sustained release composition of this invention comprises a polymeric matrix of a biocompatible polymer and particles of biologically active, stabilized hGH, wherein said particles are dispersed within the biocompatible polymer. The method of the invention for producing a composition for the sustained release of biologically active hGH, includes dissolving a biocompatible polymer in a polymer solvent to form a polymer solution, dispersing particles of biologically active, metal cation-stabilized hGH in the polymer solution, and then solidifying the polymer to form a polymeric matrix containing a dispersion of said hGH particles. The method for using a composition of the invention is a method for providing a therapeutically effective blood level of biologically active, non-aggregated hGH in a subject for a sustained period. In this method, a subject is administered an effective dose of the sustained release composition of the present invention. The method of using the sustained release composition of the present invention comprises providing a therapeutically effective blood level of biologically active, non-aggregated human growth hormone in a subject for a sustained period by administering to the subject a dose of said sustained release composition.</p>		

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 96/08086

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 6 A61K9/16 A61K38/27 A61K47/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO,A,94 12158 (ALKERMES) 9 June 1994  see page 13 - page 14; examples 1,2 see page 9, paragraph 3 see page 11, paragraph 5 - page 12, paragraph 3 ---	1-4, 6-13,15, 16,18
P,X	WO,A,95 29664 (ALKERMES) 9 November 1995  see claim 1 see page 34; example 12 see page 10, line 29 - page 11, line 14 --- -/--	1,6-16, 18

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

29 November 1996

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# INTERNATIONAL SEARCH REPORT

International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>WO,A,96 07399 (TAKEDA CHEMICAL INDUSTRIES)  14 March 1996  see claims 1-5,11,16,17  see page 8, line 4 - line 17  see page 9, line 35 - page 10, line 10  see page 11, line 17 - page 12, line 9  see page 23; example 3  see page 27; example 4  -----</p>	<p>1,4-10,  18</p>

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 96/08086

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